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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,701	10/25/2006	Julien Lefebvre	2201.0030000/RWE/ALS	2531

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EXAMINER	
FERGUSON, LAWRENCE D	

ART UNIT	PAPER NUMBER
1783	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,701	LEFEBVRE ET AL.	
	Examiner	Art Unit	
	Lawrence D. Ferguson	1783	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 February 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 15-19* is/are rejected.

7)☒ Claim(s) *14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Request for Continued Examination

1. This action is in response to the request for continued examination filed February 18, 2011. Claims 1-2 were amended rendering claims 1-19 pending.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections – 35 USC § 103(a)

3. Claims 1-2 and 11-12 are rejected under 35 U.S.C. 103(a) as obvious over Morris et al. (US Patent No. 6,500,556).

Morris teaches a metal foil-polymer laminate (column 1, lines 10-14, 58-62). Morris teaches a multilayer polymer laminate, having:

a. an adhesive layer of ethylene acrylic/methacrylic acid copolymers consisting of a blend of high-acid, high-melt index and low-acid low-melt index copolymers *(columns 1-2, lines 65-67 and 1-2)*

i. Resulting melt index of the high and low blend: 4-20 g/10 min with an acid content of about 7-12% by weight *(column 4, lines 4-12)*

b. a polyethylene layer that can be a low density polyethylene (LDPE), a linear LDPE, a high density PE that can be metallocene catalyzed *(column 2, lines 31-39)*

Morris provides examples for the preparation of foil-polymer laminates where the above ethylene acid copolymer adhesive blends *(see Examples and Tables)* are co-extruded with LDPE, and then coated onto a 2 mil thick aluminum foil, where the ethylene acid copolymer adhesively bonds the foil *(column 4, lines 38-50)*.

Morris teaches an ethylene acrylic acid/methacrylic acid copolymer blend with a melt index within the Applicant's claimed range as an adhesive layer, where one outer portion surface bonds to the aluminum foil and the second outer portion surface is suitable for adhesion to a construction material. This corresponds to the Applicant's first outer portion polymer (a) (vii) and second outer portion polymer (b) (i).

Morris teaches the adhesive copolymer is co-extruded with LDPE that can be low density, linear low density or high density, and can be metallocene catalyzed. This teaching corresponds to the first and second outer portion polymers (a) (i) and (b) (iv). The Examiner has reason to believe that the melt index of the LDPE taught by Morris has a melt index within the Applicant's broadly claimed range due to the teaching that the LDPE is extruded.

Regarding the surface energy of the polymer outer portion, Morris teaches use of an ethylene acrylic acid copolymer with an acid content of 7-12% as a polymer that has good adhesion to aluminum foil. Although Morris does not specifically teach the surface energy of this copolymer surface, one having ordinary skill in the art would recognize

that it is commonly known that acid content contributes to the hydrophilicity of polymeric surfaces, and Morris teaches a range of acid contents. Likewise, it is well-known in many arts that when good adhesion between two surfaces is desired, to increase the surface energy of a surface to be adhered. These inferences of obviousness would have been drawn from creative steps that a person of ordinary skill in the art would normally employ. At the time the invention was made, it would have been obvious to one having ordinary skill in the art to try using a known step of varying the acid content of the ethylene acrylic acid copolymer and/or treating the surface to increase the surface energy in order to achieve the a surface energy optimal for adhesion of a thin film of aluminum foil to the surface of the polymer.

The Applicant's limitation regarding "for adhesion to a construction material" is considered to be an intended use, as discussed above. Given that Morris discloses a foil-polymer film or film composite that meets the limitations of the present claims, it is clear that such a polymer film would be capable of performing the intended use, i.e. adhered to a construction material, presently claimed as required in the above cited portion of the MPEP, as in claims 1-2.

Morris teaches use of adhesive ethylene acrylic/methacrylic acid copolymers that are heated and extruded to bond the aluminum foil to the LDPE polymer film, as in claims 11-12.

Claim Rejections - 35 USC § 103

4. Claims 3-10, 13, and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris et al. (US Patent No. 6,500,556) in view of Heffelfinger et al. (US Pub 2002/0155308 A1).

Concerning claims 3-5 and 7, Morris ('556) teaches a reflective film that meets the limitations of Claim 1. Morris does not disclose a middle portion of the polymer film (Claims 3-5) or addition of slip or antiblock agents to the polymer layers. Heffelfinger ('308) teaches a polymer film laminate that has a specific multilayered structure that has the advantage of enhancing overall film structural integrity *(paragraph [0037])*. The structure includes at least one additional polymer layer disposed on either surface of a core middle layer and can be represented by the multilayer structure "ABCDE", where "C" represents the core layer *(paragraph [0025])*.

The core layer "C" is polypropylene having a melt index of about 1.5 to 4 g/10 min with a melting point of about 140-150ºC or higher *(paragraph [009], [0014-0018])*.

This teaching corresponds to the middle layer of the instant claims.

Heffelfinger teaches outer layers "A" and "E" are ethylene-vinyl acetate (EVA) copolymer *(paragraph [0019])* or polymers derived from polyethylene including low density polyethylene (LDPE) or linear LDPE (LLDPE), having a melt index of about 0.3 to about 15 g/10 min *(paragraph [0023])*. The Examiner notes that the melting point of the core polypropylene layer "C" is higher than that of the outermost layers "A" or "E"

Therefore, Heffelfinger teaches that the core polypropylene layer will be more heat resistant ("formulated to provide heat resistance").

Heffelfinger further discloses that the additional one or more polymer layers may contain appropriate additives such as antiblocking and slip agents *(paragraph [0026])*.

Heffelfinger provides specific examples having a polypropylene core, and metallocene catalyzed polyethylene as the outermost layers A and E, with a melt index from 3.5-4 g/10 min and density of 0.910 and a silica antiblock agent *(Examples 2, 4-6)*, where Heffelfinger teaches that antiblock agents are often added to extruded polymeric compositions to prevent sticking of the polymer to the extrusion equipment *(paragraph [0026])*. The Examiner notes that this polymer layer corresponds to first outer portion (a)-(i) of the instant claims.

At the time of the invention, it would have been obvious to one having ordinary skill in the art to modify the reflective film taught by Morris by adding a middle layer of polypropylene as taught by Heffelfinger, and to adjust the density of the polymer layers accordingly because as discussed above, Heffelfinger teaches that this multilayered film structure enhances the overall structural integrity of thin polymer film or film composite laminates.

At the time the invention was made, it would have further been obvious to one having ordinary skill in the art to include an antiblock agent as taught by Heffelfinger in the polymer films taught by Morris because use of such agents are commonly known additives in the art of extruding polymer compositions, where such agents are added to modify or enhance (optimize) certain properties of multilayer films for specific end-uses as a results effective variable *(paragraph [0026])*.

Concerning claim 8, Morris ('556) teaches a reflective film that meets the limitations of Claim 1. Morris does not disclose that the polymer film is surface treated. Heffelfinger teaches that an additional coating or material may be applied to either one or both faces of the polymer film laminate (A or E) as discussed above, where the material can be a metal foil such as aluminum foil; nonwoven tissue; another polymer film or laminate; cellulosic webs such as corrugated paperboard, craft paper, cartonboard *(paragraph [0034])*.

Heffelfinger likewise teaches that the outermost additional polymer layers (A or E) may be treated (e.g. corona discharge, flame treatment) to increase the surface energy and therefore ensure that a coating layer or material will be strongly adherent thereto, thereby reducing the possibility of peeling or being stripped from the film *(paragraph [0033])*.

Further, Heffelfinger teaches that adhesion of additional materials to the outermost polymer layers of the polymer laminate may be achieved through use of a hot melt adhesive such as LDPE or ethylene methacrylate copolymer *(paragraph [0034])*.

As discussed above, the Examiner has reason to believe that the polymers taught by Morris has a surface energy of at least 35 dynes, and points out that both teach an acid content of an ethylene acrylic acid copolymer, where one having ordinary skill in the art would readily recognize that the hydrophilicity of polymeric surfaces (surface energy) is increased by adjusting the acid content.

Heffelfinger teaches that it is well-known in the art to increase the surface energy of polymer films through surface treatment whereby oxygen-containing functional groups are introduced to the surface.

Therefore, at the time the invention was made, it would have been obvious to one having ordinary skill in the art to surface treat the polymer film or film composite taught by Morris as taught by Heffelfinger because this results in a polymer film with higher surface energy and will therefore have improved adhesion to other materials such as the aluminum foil layer taught by either (a) Rieke or (b) Morris.

Concerning claim 13, Morris ('556) teaches a reflective film that meets the limitations of Claim 1. The Examiner points out that as discussed above, Morris teaches use of a thermal adhesive. Morris does not disclose adhesion of the Aluminum foil using the claimed curable or cross-linking adhesives or that the foil layer is primed before being adhered to the polymer film.

The Examiner notes that Morris teaches that the polar foil layer may be surface treated to improve adhesion to the non-polar polymer film *(Col 2, lines 40-48)* and that polyurethane-based primers known in the art may likewise be applied *(Col 2, lines 48-49)*. Heffelfinger teaches that the outer surfaces of the polymer film or film laminate (layers A or E) may be primed with an epoxy primer *(paragraph [0032])*.

The Examiner deems that application of an adhesion promoting primer to either one or both surfaces to be adhered is well known in many arts when good adhesion between two surfaces is desired.

As Heffelfinger teaches use of a curable epoxy primer on one surface, at the time of the invention, it would have been obvious to one having ordinary skill in the art to apply the primer to the Aluminum foil instead of to the surface of the polymer film laminate because this inference of obviousness would have been drawn from creative steps that a person of ordinary skill in the art would normally employ. It would have been obvious to use the known step of applying a primer to a surface to be adhered to another surface, particularly to the aluminum foil surface, in order to accomplish the end result of improving the adhesive bond between the two surfaces in the same way.

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the reflective film taught by Morris to include a curable or cross-linking adhesive disposed between the Aluminum foil and polymer film as taught by Heffelfinger because as both Heffelfinger and Morris teach, it is widely known in the art of laminating foils to films to prime the surfaces to further improve the adhesion and prevent the delamination of the foil from the polymer film.

Concerning claims 9-10, 15, and 17-18, the Examiner notes that Claims 9-10, 15, and 17-18 are product-by-process claims, where although the primary references may not disclose the steps of the instant claims, it is noted the "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process", *In re Thorpe,* 777 F.2d 695, 698, 227 USPQ

964, 966 (Fed. Cir. 1985). Further, "although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product", *In re Marosi,* 710 F.2d 798, 802, 218, USPQ 289, 292 (Fed. Cir. 1983). See MPEP 2113.

Therefore, absent evidence of criticality regarding the presently claimed (process) and given that the primary references meet the requirements of the claimed composition, they clearly meet the requirements of present claims 9-10, 15, and 17-18, capable of being made in the manner described.

The Examiner notes that one having ordinary skill in the art would readily recognize that use of a hot melt adhesive involves use of heat and pressure to laminate materials, thus Morris both teaches use of such adhesives, the reflective film is capable of being made by a heat and pressure laminator. Morris teaches heating and co-extrusion of the polymer film composite, coating of the film onto aluminum foil, followed by cooling of the reflective film on nip rollers (pressure) *(Col 4, lines 36-54)*.

Concerning claims 6 and 15-19, regarding the limitations toward the "construction material" of Claims 15-19, the Examiner notes as above, that this is considered to be an intended use of the Applicant's claimed reflective film. Rieke teaches a reflective film that meets the limitations of Claim 1 and as discussed above, discloses that such films are useful in building and insulation panels. Morris likewise teaches a reflective film that meets the limitations of Claims 1-2. Heffelfinger teaches a multilayered polymer film laminate that is capable of having other materials adhered to either or both surfaces such as aluminum foil; nonwoven tissue; another polymer film or laminate; cellulosic

webs such as corrugated paperboard, craft paper, cartonboard *(paragraph [0034])*. The Examiner notes that these materials are all materials used in construction materials (e.g. drywall, paper-laminated insulation, weather seal, waterproofing plastic underlays).

These teachings therefore correspond to the Applicant's claims toward construction materials including a structural or non-structural plastic (another polymer film or laminate).

Therefore, given the particular utility of such foil-polymer film laminates in building and insulation panels as taught by Morris, it would have been obvious to one having ordinary skill in the art at the time of the invention to adhere the foil-polymer film laminate taught by either Morris to a construction material as taught by Heffelfinger depending on the desired use of the composite laminate, because such laminates are useful in building or insulation panels.

Further, with respect to the limitations of Claim 6, given the teaching in Heffelfinger that the polymer film is capable of being adhered to craft paper, it would have been obvious to one having ordinary skill in the art to modify the reflective film of either (a) Rieke or (b) Morris by including kraft paper layer(s) in the middle with the polypropylene core of Heffelfinger because one having ordinary skill in the art would readily recognize that such a layer is capable of bonding to materials such as kraft paper, and that inclusion of kraft paper layers in the core layer will provide additional structural integrity to the overall laminate structure and reduce the susceptibility of the material to tearing easily and degrading.

5. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The closest prior art does not teach or suggest the recited reflective film further including wherein the layer of aluminum foil has a plurality of perforations therethrough.

The prior art does not teach motivation or suggestion for modification to make the invention as instantly claimed.

Response to Arguments

6. Applicant's arguments regarding the rejection made under 35 U.S.C. 103(a) as obvious over Morris et al. (US Patent No. 6,500,556) has been considered but is unpersuasive. Applicant argues the Examiner has misinterpreted the present claims as instant claims 1 and 2 recite a reflective film including a polymer film having two outer surfaces with adhesive properties, where the second outer surface is not the same as the first outer surface.

Morris teaches a metal foil-polymer laminate (column 1, lines 10-14, 58-62) having: an adhesive layer of ethylene acrylic/methacrylic acid copolymers consisting of a blend of high-acid, high-melt index and low-acid low-melt index copolymers *(columns 1-2, lines 65-67 and 1-2).* Morris provides examples for the preparation of foil-polymer laminates where the above ethylene acid copolymer adhesive blends *(see Examples and Tables)* are co-extruded with LDPE, and then coated onto a 2 mil thick aluminum foil, where the ethylene acid copolymer adhesively bonds the foil *(column 4, lines 38-*

50). Morris teaches an ethylene acrylic acid/methacrylic acid copolymer blend with a melt index within the Applicant's claimed range as an adhesive layer, where one outer portion surface bonds to the aluminum foil and the second outer portion surface is suitable for adhesion to a construction material. This corresponds to the Applicant's first outer portion polymer (a) (vii) and second outer portion polymer (b) (i). Although Applicant argues the second outer surface is not the same as the first outer surface, the disclosure of claim 1 indicates that the first outer portion polymer (a) (vii) is an ethylene acrylic acid and methacrylic acid copolymer, which is the same as (b) (i), where both outer surfaces have adhesive properties and only one of the outer surfaces is adhered to aluminum. foil.

Applicant further argues the polymer film disclosed in Morris would not have the desired properties of being able to bind to a construction material. Examiner maintains given that Morris discloses a foil-polymer film or film composite that meets the limitations of the present claims, it is clear that such a polymer film would be capable of performing the intended use, i.e. adhered to a construction material. Because claims 1 and 2 have been maintained under Morris, dependent claims 11-12 are also maintained as being rejected under Morris for reasons of record.

Applicant's arguments of the rejection made under 35 U.S.C. 103(a) as being unpatentable over Morris et al. (US Patent No. 6,500,556) in view of Heffelfinger et al. (US Pub 2002/0155308 A1) have been considered but are unpersuasive. Applicant argues Heffelfinger does not cure the deficiencies of Morris. Because Morris has been maintained, Morris in view of Heffelfinger is also maintained for reasons of record.

Applicant further argues nowhere in Heffelfinger is there any teaching or suggestion that the disclosed film can be made suitable for adherence to a construction material without the use of an adhesive, with or without the presence of an adhered layer of aluminum foil. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Given that Morris and Heffelfinger disclose a foil-polymer film or film composite that meets the limitations of the present claims, it is clear that such a polymer film would be capable of performing the intended use, i.e. adhered to a construction material.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is 571-272-1522. The examiner can normally be reached on Monday through Friday 9:00 AM – 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample, can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Lawrence Ferguson/
Patent Examiner, Art Unit 1783

/David R. Sample/
Supervisory Patent Examiner, Art Unit 1783